AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-19. (Canceled)

20. (Currently Amended) A pattern inspection apparatus for inspecting a pattern to-be-inspected by comparing an image of said pattern to-be-inspected with a reference pattern obtained from design data, said pattern inspection apparatus comprising:

storage means for storing said reference pattern;

inputting means for inputting said pattern image to-be-inspected;

detecting means for detecting an edge of said pattern image to-be-inspected;

inspecting means for inspecting said pattern to-be-inspected by comparing the edge of said pattern image to-be-inspected and an edge of said reference pattern; ~~and~~

outputting means for outputting a result of said inspection<u>; and</u>

<u>means for converting said design data into said reference pattern by correcting said design data with respect to a deformation which may occur in said pattern to-be-inspected</u>.

21. (Previously presented) The pattern inspection apparatus as claimed in claim 20, wherein said detecting means detects the edge of said pattern image to-be-inspected with a sub pixel accuracy.

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22.   (Currently Amended) A pattern inspection apparatus for inspecting a pattern to-be-inspected by comparing an image of said pattern to-be-inspected with a reference pattern obtained from design data, said pattern inspection apparatus comprising:

storage means for storing said reference pattern;

inputting means for inputting said pattern image to-be-inspected;

inspecting means for inspecting said pattern to-be-inspected by comparing an edge of said pattern image to-be-inspected and an edge of said reference pattern; and

outputting means for outputting a result of said inspection,

wherein said inspecting means conducts matching between said pattern image to-be-inspected and said reference pattern by comparing the edge of said pattern image to-be-inspected and the edge of said reference pattern; and

means for converting said design data into said reference pattern by correcting said design data with respect to a deformation which may occur in said pattern to-be-inspected.

23.   (Previously presented) The pattern inspection apparatus as claimed in claim 22, wherein said matching is conducted by dilating the edge of said pattern image to-be-inspected or the edge of said reference pattern.

24.   (Previously presented) The pattern inspection apparatus as claimed in claim 23, wherein said matching is conducted by dilating the edge of said pattern image to-be-inspected or the edge of said reference pattern with weightings given.

25. (Previously presented) The pattern inspection apparatus as claimed in claim 22, wherein said matching is conducted by using the total sum of products of amplitudes of the edges of said pattern image to-be-inspected and amplitudes of the edges of said reference pattern at respective pixels as an evaluation value.

26. (Previously presented) The pattern inspection apparatus as claimed in claim 22, wherein said matching is conducted by calculating an evaluation value of the matching in consideration of a direction of the edge of said pattern image to-be-inspected and a direction of the edge of said reference pattern.

27. (Previously presented) The pattern inspection apparatus as claimed in claim 26, wherein said matching is conducted by using the total sum of inner products of edge vectors of said pattern image to-be-inspected and edge vectors of said reference pattern at respective pixels or the total sum of absolute values of said inner products as an evaluation value, wherein each of said edge vectors has a magnitude equal to amplitude of the edge and a direction identical to the direction of the edge.

28. (Previously presented) The pattern inspection apparatus as claimed in claim 22, wherein said matching is conducted by altering for each part of said reference pattern, a contribution thereof to the matching.

29. (Previously presented) The pattern inspection apparatus as claimed in claim 28, wherein said matching is conducted by extracting a unique pattern by using periodicity of said reference pattern, and setting different weightings for an evaluation value of the matching depending on whether a pattern in said reference pattern is the unique pattern or not.

30.　(Previously presented) The pattern inspection apparatus as claimed in claim 20, wherein said inspecting means assumes the correspondence of the edge of each pixel of said reference pattern to the edge of each pixel of said pattern image to-be-inspected.

31.　(Previously presented) The pattern inspection apparatus as claimed in claim 30, wherein said correspondence-assumption is conducted considering the distance between the edge of each pixel of said reference pattern and the edge of each pixel of said pattern image to-be-inspected and the directional difference between both the edges.

32.　(Previously presented) The pattern inspection apparatus as claimed in claim 30, wherein said inspecting means constructs an area based on the edges of said pattern image to-be-inspected in which said inspecting means failed to assume said correspondence to the edges of said reference pattern, and recognizes said area as a defective area.

33.　(Previously presented) The pattern inspection apparatus as claimed in claim 30, wherein said inspecting means constructs an area based on the edges of said pattern image to-be-inspected in which said inspecting means succeeded in assuming said correspondence to the edges of said reference pattern, detects an area whose luminance distribution is non-uniform among the areas, and determines said area as a defective area.

34.　(Previously presented) The pattern inspection apparatus as claimed in claim 32 or 33, wherein said inspecting means judges a defect class based on geometrical feature quantities of said defective area.

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35. (Previously presented) The pattern inspection apparatus as claimed in claim 32 or 33, wherein said inspecting means judges a defect class based on a feature quantity concerning the luminance of said defective area.

36. (Previously presented) The pattern inspection apparatus as claimed in claim 30, wherein said inspecting means calculates a pattern deformation quantity or pattern deformation quantities of said pattern to-be-inspected with respect to said reference pattern.

37. (Previously presented) The pattern inspection apparatus as claimed in claim 36, wherein said pattern deformation quantity includes at least one of a displacement quantity, a magnification variation quantity, and a dilation quantity of the line width.

38. (Previously presented) The pattern inspection apparatus as claimed in claim 36, wherein said inspecting means adds an attribute of the pattern to said reference pattern.

39. (Previously presented) The pattern inspection apparatus as claimed in claim 20, wherein said inspecting means forms a profile by examining luminance values in a profile acquisition section in said pattern image to-be-inspected, detects predetermined points for each said profile, approximates the detected points with a curve, and assumes the curve to be an edge of said pattern image to-be-inspected.

Claims 40-48 (Cancelled)

49. (Previously presented) The pattern inspection apparatus as claimed in claim 20 or 22, further comprising means for setting allowable pattern deformation

quantity and/or allowable pattern directional difference with respect to said reference pattern.

50.   (Previously presented) The pattern inspection apparatus as claimed in claim 49, wherein said allowable pattern deformation quantity and/or said allowable pattern directional difference can be set individually in accordance with an attribute of said reference pattern.